Test Report

Verified code: 136933

Report No.: E20240407651301-3

Customer:	Lumi United Technology Co., Ltd.
Address:	Room 801-804, Building 1, Chongwen Park, Nanshan iPark, No. 3370, Liuxian Avenue, Fuguang Community, Taoyuan Residential District, Nanshan District, Shenzhen, China
Sample Name:	Presence Sensor FP1E
Sample Model:	PS-S03D
Receive Sample Date:	Apr.08,2024
Test Date:	Apr.09,2024 ~ Apr.15,2024
Reference Document:	AS/NZS 4268:2017 ETSI EN 300 328 V2.2.2 (2019-07)
Test Result:	Pass

Prepared by: Lu Wei — Lu Wei

Reviewed by: Wu Haoting — Wu Haoting

Approved by: Xiao Liang — Xiao Liang

GRG METROLOGY & TEST GROUP CO., LTD.

Issued Date: 2024-05-27

GRG METROLOGY & TEST GROUP CO., LTD.
Address: No.163, Pingyun Road, West of Huangpu Avenue, Guangzhou, Guangdong, China
Tel：（+86）400-602-0999 FAX：（+86）020-38698685 Web：http://www.grgtest.com

Statement

1. The report is invalid without "special seal for inspection and testing"; some copies are invalid; The report is invalid if it is altered or missing; The report is invalid without the signature of the person who prepared, reviewed and approved it.

2. The sample information is provided by the client and responsible for its authenticity; The content of the report is only valid for the samples sent this time.

3. When there are reports in both Chinese and English, the Chinese version will prevail when the language problems are inconsistent.

4. If there is any objection concerning the report, please inform us within 15 days from the date of receiving the report.

5. Without the agreement of the laboratory, the client is not authorized to use the test results for unapproved propaganda.

---------- **The following blanks** ----------

TABLE OF CONTENTS

---------- The following blanks ----------

REPORT ISSUED HISTORY

Report Version	Report No.	Description	Compile Date
1.0	E20240407651301-3	Original Issue	2024-04-24

---------- The following blanks ----------

1. TEST RESULT SUMMARY

Test Item	Test mode	Test Requirement	Test Method	Class / Severity	Test Result
1. Transmitter Part					
RF Output Power	Mode 1	AS/NZS 4268:2017 Clause 6.3	EN300 328 V2.2.2/5.4.2.2.1	Meet requirements: EN300 328 V2.2.2/ 4.3.2.2	PASS
Power Spectral Density	Mode 1	ETSI EN 300 328 V2.2.2/4.3.2.3	EN300 328 V2.2.2/5.4.3.2.1	Meet requirements: EN300 328 V2.2.2/4.3.2.3	PASS
Duty Cycle, Tx-sequence, Tx-gap	/	ETSI EN 300 328 V2.2.2/4.3.2.4	EN300 328 V2.2.2/5.4.2.2.1	Meet requirements: EN300 328 V2.2.2/4.3.2.4	N/A[1)]
Medium Utilisation (MU) factor	/	ETSI EN 300 328 V2.2.2/4.3.2.5	EN300 328 V2.2.2/5.4.2.2	Meet requirements: EN300 328 V2.2.2/ 4.3.2.5	N/A[1)]
Adaptivity	/	ETSI EN 300 328 V2.2.2/4.3.2.6	EN300 328 V2.2.2/5.4.6.2.1	Meet requirements: EN300 328 V2.2.2/ 4.3.2.6	N/A[1)]
Occupied Channel Bandwidth	Mode 1	AS/NZS 4268:2017 Clause 6.5 and Clause 6.6	EN300 328 V2.2.2/5.4.7.2.1	Meet requirements: EN300 328 V2.2.2/ 4.3.2.7	PASS
Transmitter unwanted emissions in the out-of-band domain	Mode 1	AS/NZS 4268:2017 Clause 6.4	EN300 328 V2.2.2/5.4.8.2.1	Meet requirements: EN300 328 V2.2.2/ 4.3.2.8	PASS
Transmitter unwanted emissions in the spurious domain	Mode 1	AS/NZS 4268:2017 Clause 6.4	EN300 328 V2.2.2/5.4.9.2.2	Meet requirements: EN300 328 V2.2.2/ 4.3.2.9	PASS
2. Receiver Part					
Receiver spurious emissions	Mode 2	AS/NZS 4268:2017 Clause 7.2	EN300 328 V2.2.2/5.4.10.2.2	Meet requirements: EN300 328 V2.2.2/ 4.3.2.10	PASS
Receiver Blocking	Mode 2	EN300 328 V2.2.2/ 4.3.2.11	EN300 328 V2.2.2/5.4.11.2.1	Meet requirements: EN300 328 V2.2.2/ 4.3.2.11	PASS

Note:

1） The EUT is non-adaptive device and the RF Output power is less than 10 dBm e.i.r.p, so it is not applied.

2. GENERAL DESCRIPTION OF EUT

2.1 APPLICANT INFORMATION

Name:	Lumi United Technology Co., Ltd
Address:	Room 801-804, Building 1, Chongwen Park, Nanshan iPark, No. 3370, Liuxian Avenue, Fuguang Community, Taoyuan Residential District, Nanshan District, Shenzhen, China

2.2 MANUFACTURER

Name:	Lumi United Technology Co., Ltd
Address:	Room 801-804, Building 1, Chongwen Park, Nanshan iPark, No. 3370, Liuxian Avenue, Fuguang Community, Taoyuan Residential District, Nanshan District, Shenzhen, China

2.3 BASIC DESCRIPTION OF EUT

Product Name:	Presence Sensor FP1E
Product Model:	PS-S03D
Adding Model:	PS-S03E
Model different description:	PS-S03D and PS-S03E have the same technical construction including circuit diagram, PCB LAYOUT, hardware version and software version identical, except sales area and packaging are different.
Trade Name:	Aqara
Power Supply:	DC 5V,1A
Frequency Band:	2405MHz-2480MHz
Modulation Type:	O-QPSK
Antenna Specification:	PIFA antenna 2.0dBi gain (Max.)
Sample submitting way:	■Provided by customer □Sampling
Sample No:	E20240407651301-0001, E20240407651301-0002, E20240407651301-0003
Temperature Range:	-10 ℃ ~ +40 ℃
Hardware Version:	T1
Software Version:	V.1
Note:	The EUT antenna gain is provided by the applicant. This report is made solely on the basis of such data and/or information. We accept no responsibility for the authenticity and completeness of the above data and information and the validity of the results and/or conclusions.

2.4 TEST MODE

Test mode 1: ZigBee Transmitting Mode

Test mode 2: ZigBee Receiving Mode

2.5 CHANNEL LIST

Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)
*11	2405	12	2410	13	2415	14	2420
15	2425	16	2430	17	2435	*18	2440
19	2445	20	2450	21	2455	22	2460
23	2465	24	2470	25	2475	*26	2480

*is test channel. The lowest channel: channel 11(2405MHz), middle channel: channel 18(2440MHz) and highest channel: channel 26(2480MHz).

2.6 DESCRIPTION OF ADAPTIVE EQUIPMENT

The type of the equipment	□ FHSS	√ other forms of modulation	/	
Adaptive / non-adaptive equipment	√ Non-adaptive Equipment	□ adaptive Equipment without the possibility to switch to a non-adaptive mode	□ adaptive Equipment which can also operate in a non-adaptive mode	
The equipment has an implemented	□ Frame Based equipment	□ Load Based equipment	□ non-LBT based DAA mechanism	√ other
Device Class	□ Wi-Fi	□ Bluetooth Low Energy	□ Bluetooth EDR/BR	□ BT 5.2
Wi-Fi Channel Bandwidth	□ 20MHz	□ 40MHz	□ 80MHz	□ 160MHz
Antenna Gain	√ Antenna1 2.0dBi	□ Antenna 2 dBi	□ Antenna 3 dBi	□ Antenna 4 dBi
Beamforming Gain	□ Yes, dBi	√ No		
Extreme operating conditions	√ Operating temperature range:	√ Min -10℃	√ Max +40℃	
Blocking	√ PER	□ The manufacturer may declare alternative performance criteria		
Geo-location capability supported by the equipment	□ Yes	√ No		

The maximum RF output power is 9.35dBm, so the EUT is Receiver Category 2 equipment.

3. LABORATORY

The tests and measurements refer to this report were performed by Shenzhen EMC Laboratory of GRG METROLOGY & TEST GROUP CO., LTD.

Add. :	No.1301 Guanguang Road Xinlan Community, Guanlan Street, Longhua District Shenzhen, 518110, People's Republic of China
P.C. :	518110
Telephone:	0755-61180008
Fax:	0755-61180008

4. ACCREDITATIONS

Our laboratories are accredited and approved by the following approval agencies according to ISO/IEC 17025.

China	CNAS(L0446)

Copies of granted accreditation certificates are available for downloading from our web site, http://www.grgtest.com

5. MEASUREMENTS UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in ETSI EN TR 100 028-1 (i.15) and ETSI EN 100 028-2 (i 8):

Measurement		Frequency	Uncertainty
Radiated Emission	Horizontal	30MHz~200MHz	4.0dB
		200MHz~1000MHz	4.1dB
		1GHz~12.75GHz	4.9dB
	Vertical	30MHz~200MHz	3.9dB
		200MHz~1000MHz	4.2dB
		1GHz~12.75GHz	5.0dB

Measurement	Uncertainty
RF frequency	6.0×10^{-6}
RF power conducted	0.78dB
Occupied channel bandwidth	0.40dB
Unwanted emission, conducted	0.68dB
Humidity	6%
Temperature	2℃

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

6. EQUIPMENT AND TOOLS USED DURING TEST

6.1 TEST EQUIPMENT AND TOOLS

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Maximum transmit power & Maximum e.i.r.p. spectral density & occupied channel bandwidth & Transmitter unwanted emissions in the out-of-band domain				
Automatic power measuring unit	TONSCEND	JS0806-2	21B8060365	2024-12-28
Programmable constant temperature and humidity test chamber	FC	FPHC-23AW-40	FD202306015	2024-09-10
Spectrum Analyzer	R&S	FSW43	102072	2024-07-09
BT/WIFI System	TONSCEND	JS1120-3		
Transmitter unwanted emissions in the spurious domain & Receiver spurious emissions				
Bi-log Antenna	Schwarzbeck	VULB9163	01279	2025-02-04
Horn Antenna	Schwarzbeck	BBHA9120D	02499	2024-08-26
Amplifier	Tonscend	TAP037030	AP20E8060081	2025-03-01
Amplifier	Tonscend	TAP01018048	AP20E8060076	2025-03-01
Amplifier	Tonscend	TAP9E6343	AP20E806065	2025-03-01
Spectrum Analyzer	KEYSIGHT	N9010A	MY55370330	2024-09-08
Spectrum Analyzer	R&S	FSV3044	101184	2024-08-11
Test software	Tonscend	JS36-RSE/5.0.0.1		
Receiver Blocking				
Signal Generator	R&S	SMB100A	1406.6000K03-182190-G2	2024-10-13
Spectrum Analyzer	R&S	FSW43	102072	2024-07-09
BT/WIFI System	TONSCEND	JS1120-3		

Note: The calibration interval of the above test instruments is 12 months.

6.2 LOCAL SUPPORTIVE INSTRUMENTS

No.	Name of Equipment	Manufacturer	Model	Serial Number	Note
A	Notebook	DELL	Latitude3400	CY0GJW2	2#
B	Test board	/	/	/	/

Note: The notebook is just used to produce fixed frequency transmitting.

No.	Name of Equipment	Manufacturer	Model	Serial Number	Note
1	DC cable	1	No	0	1.5m
2	Serial cable	1	No	0	0.2m
3	USB-MINI cable	1	No	0	0.5m

6.3 CONFIGURATION OF SYSTEM UNDER TEST

6.4 TEST SOFTWARE

Software version	Test level
QCOM_V1.0	2405MHz: 8 2440MHz: 8 2480MHz: 8

7. RADIO TECHNICAL REQUIREMENT SPECIFICATION

7.1 RF OUTPUT POWER

Test Requirement: AS/NZS 4268:2017 Clause 6.3

Test Method: EN300 328 V2.2.2/5.4.2.2.1

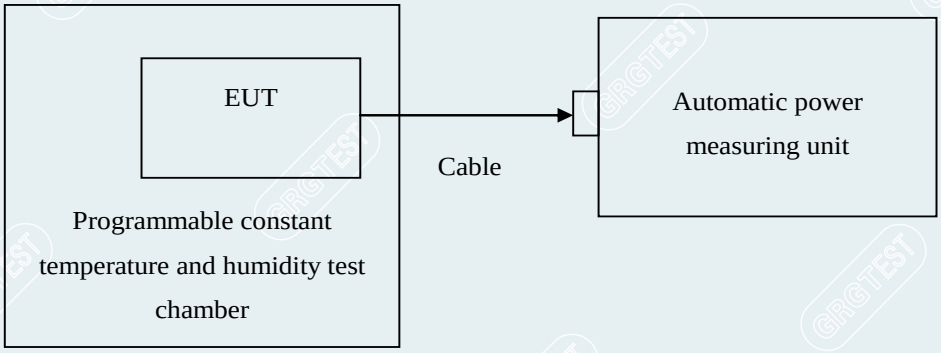
7.1.1 LIMIT

For adaptive equipment, the maximum RF output power shall be 20 dBm.

The maximum RF output power for non-adaptive equipment shall be declared by the manufacturer and shall not exceed 20 dBm. See clause 5.4.1 m). For non-adaptive equipment, the maximum RF output power shall be equal to or less than the value declared by the manufacturer.

This limit shall apply for any combination of power level and intended antenna assembly.

7.1.2 TEST CONFIGURATION



7.1.3 TEST PROCEDURES

Test procedure: Test procedure is according to EN 300 328 V2.2.2/5.4.2.2.1

Test channel: Lowest channel, Middle channel, Highest channel

Test condition: Normal and extreme test conditions

7.1.4 TEST RESULTS

Test Date (yy-mm-dd): 2024-04-09

Test environment: Normal condition: 24.2℃/64%RH/101.0kPa

Extreme test conditions: Low Temp: -10℃

High Temp: +40℃

Test By: Qin Tingting

Test Condition	Test Mode	Test Frequency (MHz)	EIRP[dBm]	Limit[dBm]	Verdict
Normal temperature/ Normal voltage	ZigBee	2405	9.28	20	PASS
		2440	9.34	20	PASS
		2480	9.15	20	PASS
Low temperature/ Normal voltage	ZigBee	2405	9.29	20	PASS
		2440	9.35	20	PASS
		2480	9.15	20	PASS
High temperature/ Normal voltage	ZigBee	2405	9.28	20	PASS
		2440	9.34	20	PASS
		2480	9.15	20	PASS

---------- **The following blanks** ----------

7.2 POWER SPECTRAL DENSITY

Test Requirement: EN300 328 V2.2.2/4.3.2.3

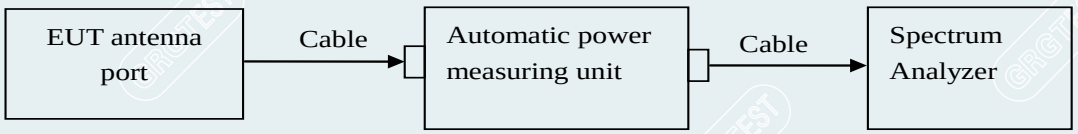
Test Method: EN300 328 V2.2.2/5.4.3.2.1

7.2.1 LIMIT

This requirement applies to all types of equipment using wide band modulations other than FHSS.

For equipment using wide band modulations other than FHSS, the maximum Power Spectral Density is limited to 10 dBm per MHz.

7.2.2 TEST CONFIGURATION



7.2.3 TEST PROCEDURES

Test condition: Normal test conditions

Test channel: Lowest channel, Middle channel, Highest channel

Test procedure: Test procedure is according to EN 300 328 V2.2.2/5.4.3.2.1

7.2.4 TEST RESULTS

Test Date (yy-mm-dd): 2024-04-09

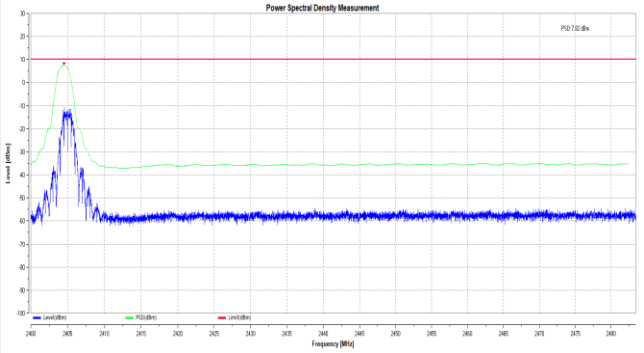
Test environment: Normal condition:

24.2℃/64%RH/101.0kPa

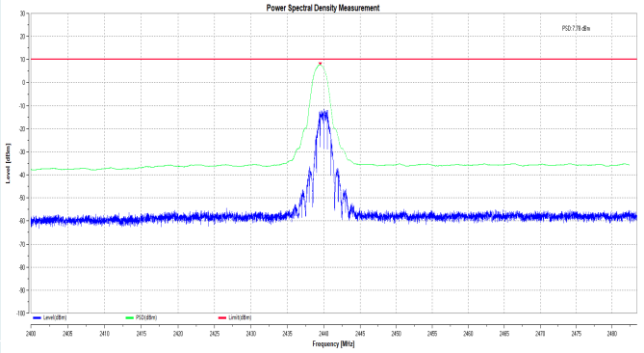
Test By: Qin Tingting

Test Mode	Frequency [MHz]	PSD[dBm/MHz]	Limit[dBm/MHz]	Verdict
ZigBee	2405	7.82	10	PASS
	2440	7.78	10	PASS
	2480	7.69	10	PASS

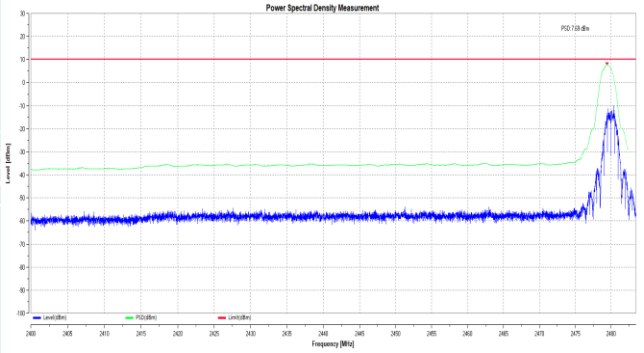
7.2.5 TEST SCREENSHOTS



Lowest Frequency: 2405MHz



Middle Frequency: 2440MHz



Highest Frequency: 2480MHz

---------- The following blanks ----------

7.3 OCCUPIED CHANNEL BANDWIDTH

Test Requirement: AS/NZS 4268:2017 Clause 6.5 and Clause 6.6

Test Method: EN300 328 V2.2.2/5.4.7.2.1

7.3.1 LIMIT

This requirement applies to all types of non-FHSS equipment.

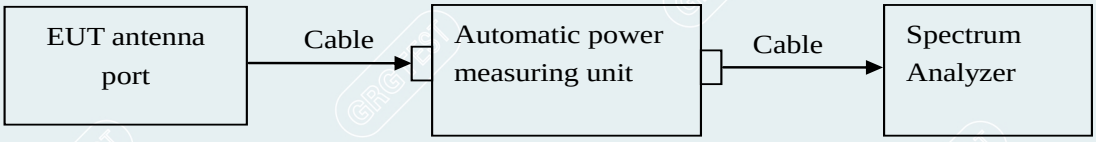
The Occupied Channel Bandwidth shall fall completely within the band given in table 2.

In addition, for non-adaptive equipment using wide band modulations other than FHSS and with e.i.r.p. greater than 10 dBm, the occupied channel bandwidth shall be less than 20 MHz.

Table 2: Service frequency bands

	Service frequency bands
Transmit	2 400 MHz to 2 483,5 MHz
Receive	2 400 MHz to 2 483,5 MHz

7.3.2 TEST CONFIGURATION



7.3.3 TEST PROCEDURES

Test condition: Normal test conditions.

Test channel: Lowest channel, Middle channel, Highest channel

Test procedure: Test procedure is according to EN 300 328 V2.2.2/5.4.7.2.1

7.3.4 TEST RESULTS

Test Date (yy-mm-dd): 2024-04-09

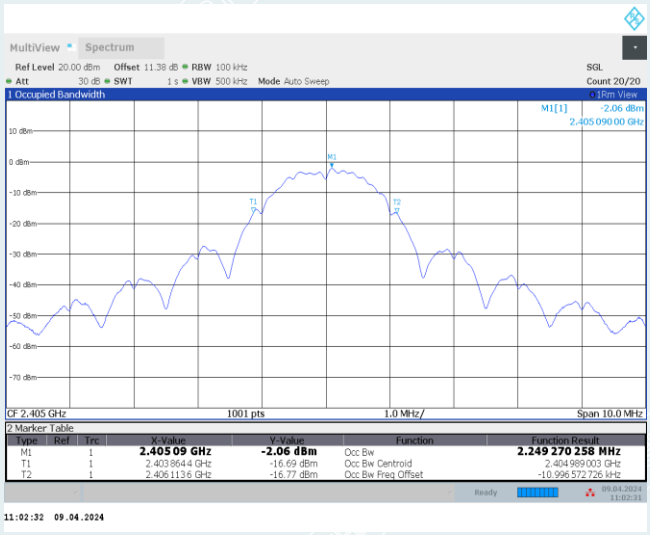
Test environment: Normal condition:

24.2℃/64%RH/101.0kPa

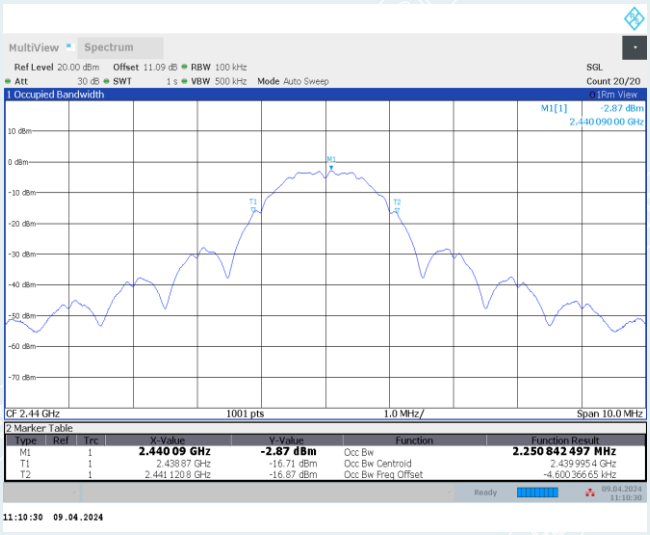
Test By: Qin Tingting

Test Mode	Frequency [MHz]	OCB[MHz]	F_L[MHz]	F_H[MHz]	Limit[MHz]	Verdict
ZigBee	2405	2.249	2403.8644	2406.1136	2400 to 2483.5	PASS
	2440	2.251	2438.8700	2441.1208	2400 to 2483.5	PASS
	2480	2.254	2473.8680	2476.1218	2400 to 2483.5	PASS

7.3.5 TEST SCREENSHOTS



Lowest Frequency: 2405MHz



Middle Frequency: 2440MHz

Highest Frequency: 2480MHz

7.4 TRANSMITTER UNWANTED EMISSIONS IN THE OUT-OF-BAND DOMAIN

Test Requirement: AS/NZS 4268:2017 Clause 6.4

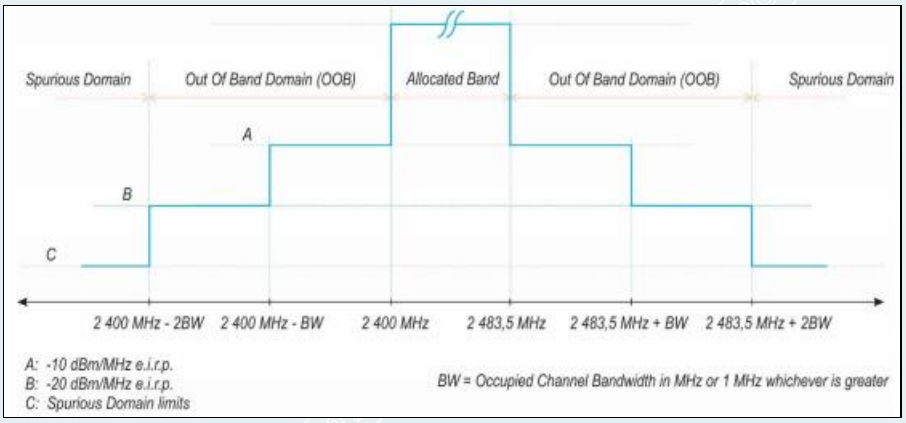
Test Method: EN300 328 V2.2.2/5.4.8.2.1

7.4.1 LIMIT

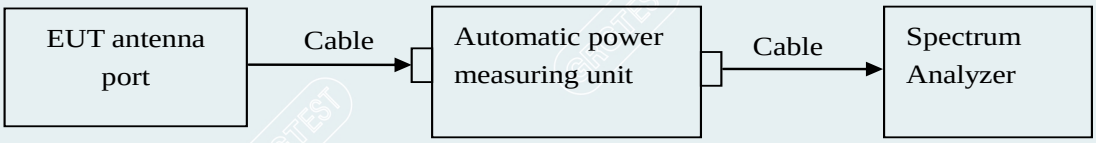
This requirement applies to all types of FHSS equipment and all types of non-FHSS equipment.

The transmitter unwanted emissions in the out-of-band domain but outside the allocated band, shall not exceed the values provided by the mask in figure 3.

The Out-of-band emissions are fulfilled by compliance with the Occupied Channel Bandwidth requirement.



7.4.2 TEST CONFIGURATION



7.4.3 TEST PROCEDURES

Test condition: Normal test conditions.

Test channel: Lowest channel, Highest channel

Test procedure: Test procedure is according to EN 300 328 V2.2.2/5.4.8.2.1

7.4.4 TEST RESULTS

Test Date (yy-mm-dd): 2024-04-09

Test environment: Normal condition:

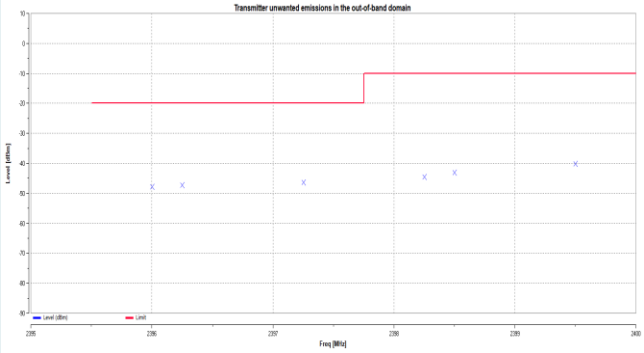
24.2℃/64%RH/101.0kPa

Test By: Qin Tingting

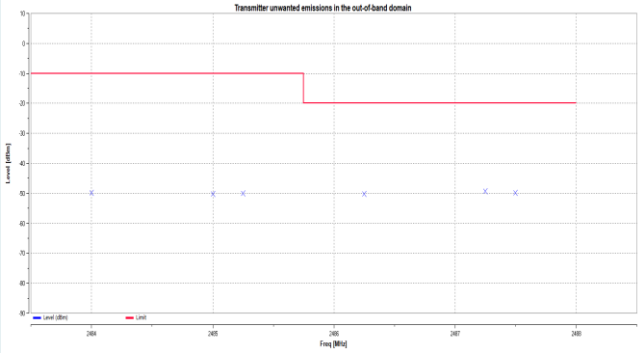
Test Mode	Frequency (MHz)	Frequency (MHz)	Level[dBm]	Limit[dBm]	Verdict
ZigBee	2405	2396.002	-47.81	-20.00	PASS
		2396.251	-47.28	-20.00	PASS
		2397.251	-46.34	-20.00	PASS
		2398.251	-44.55	-10.00	PASS
		2398.5	-43.12	-10.00	PASS
		2399.5	-40.27	-10.00	PASS
		2484	-49.86	-10.00	PASS
		2485	-50.24	-10.00	PASS
		2485.249	-50.04	-10.00	PASS
		2486.249	-50.26	-20.00	PASS
		2487.249	-49.32	-20.00	PASS
		2487.498	-49.81	-20.00	PASS
	2480	2395.992	-50.50	-20.00	PASS
		2396.246	-50.52	-20.00	PASS
		2397.246	-50.43	-20.00	PASS
		2398.246	-50.17	-10.00	PASS
		2398.5	-50.45	-10.00	PASS
		2399.5	-50.51	-10.00	PASS
		2484	-46.89	-10.00	PASS
		2485	-47.92	-10.00	PASS
		2485.254	-47.40	-10.00	PASS
		2486.254	-48.62	-20.00	PASS
		2487.254	-49.04	-20.00	PASS
		2487.508	-49.34	-20.00	PASS

7.4.5 TEST SCREENSHOTS

Modulation Type: ZigBee (2405MHz)

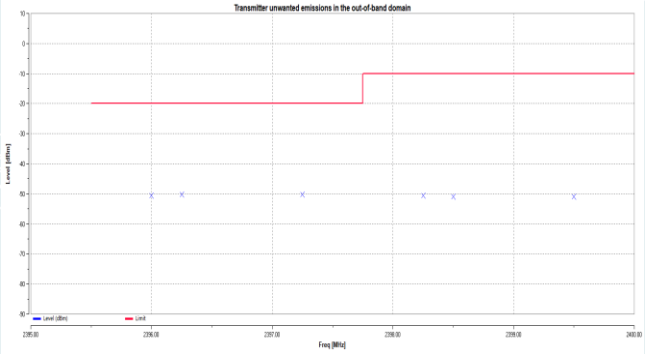


Left side of working frequency band

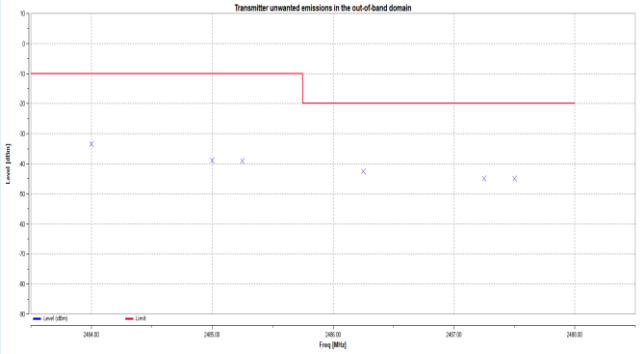


Right side of working frequency band

Modulation Type: ZigBee (2480MHz)



Left side of working frequency band



Right side of working frequency band

---------- The following blanks ----------

7.5 TRANSMITTER UNWANTED EMISSIONS IN THE SPURIOUS DOMAIN

Test Requirement: AS/NZS 4268:2017 Clause 6.4

Test Method: EN300 328 V2.2.2/5.4.9.2.2

7.5.1 LIMIT

This requirement applies to all types of non-FHSS equipment.

The transmitter unwanted emissions in the spurious domain shall not exceed the values given in table 2. In case of equipment with antenna connectors, these limits apply to emissions at the antenna port (conducted). For emissions radiated by the cabinet or emissions radiated by integral antenna equipment (without antenna connectors), these limits are e.r.p. for emissions up to 1 GHz and as e.i.r.p. for emissions above 1 GHz.

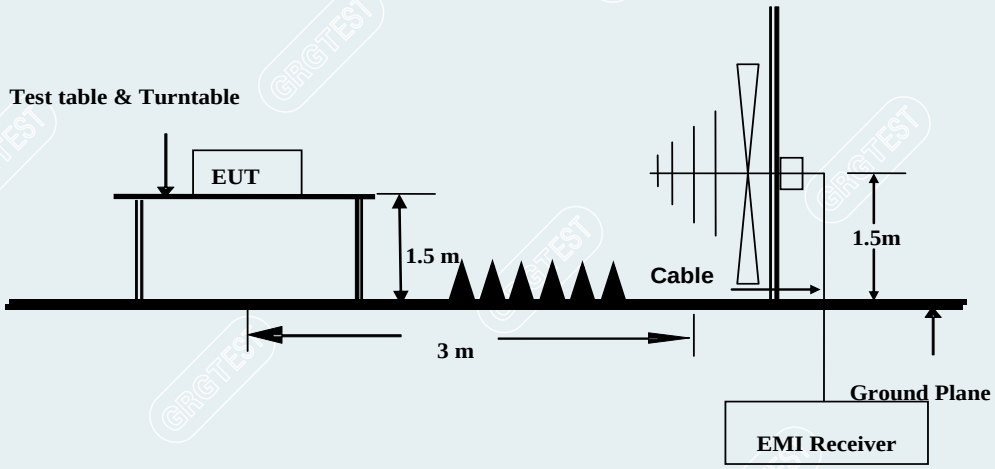
Note: This test uses conducted emissions measurement and Radiated emissions measurement.

Table 2: Transmitter limits for spurious emissions

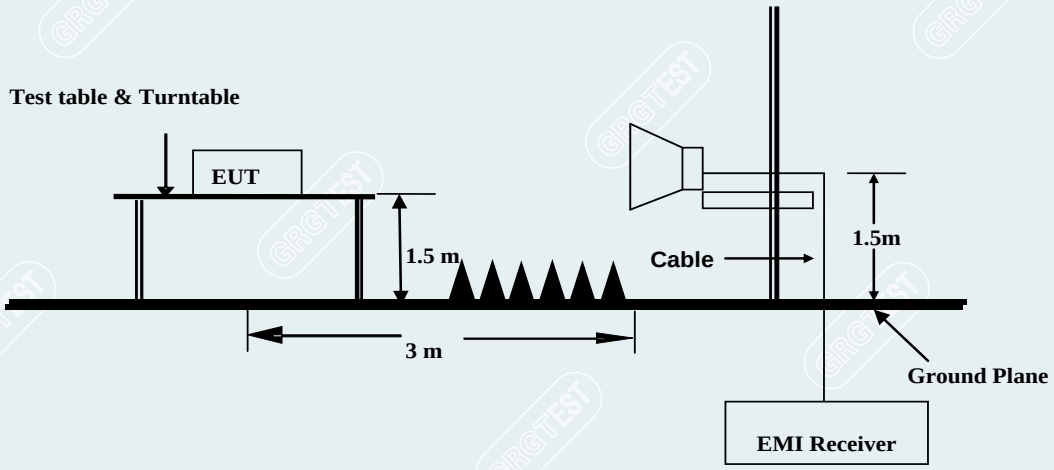
Frequency range	Maximum power	Bandwidth
30 MHz to 47 MHz	-36 dBm	100 kHz
47 MHz to 74 MHz	-54 dBm	100 kHz
74 MHz to 87,5 MHz	-36 dBm	100 kHz
87,5 MHz to 118 MHz	-54 dBm	100 kHz
118 MHz to 174 MHz	-36 dBm	100 kHz
174 MHz to 230 MHz	-54 dBm	100 kHz
230 MHz to 470 MHz	-36 dBm	100 kHz
470 MHz to 694 MHz	-54 dBm	100 kHz
694 MHz to 1 GHz	-36 dBm	100 kHz
1 GHz to 12,75 GHz	-30 dBm	1 MHz

7.5.2 TEST CONFIGURATION

30MHz~1000MHz



1000MHz~12750MHz



7.5.3 TEST PROCEDURES

Test condition: Normal test conditions.

Test channel: Lowest channel, Highest channel

Test procedure: Test procedure is according to Clause 5.4.9.2.2 of EN 300 328 V2.2.2

7.5.4 DATA SAMPLE

Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Detector	Polarity
XXX	-49.71	-57.90	-30.00	27.90	-8.19	RMS	Horizontal

Frequency (MHz) = Emission frequency in MHz

Reading (dBm) = Uncorrected Analyzer / Receiver reading

Level (dBm) = Reading (dBm) + Factor (dB)

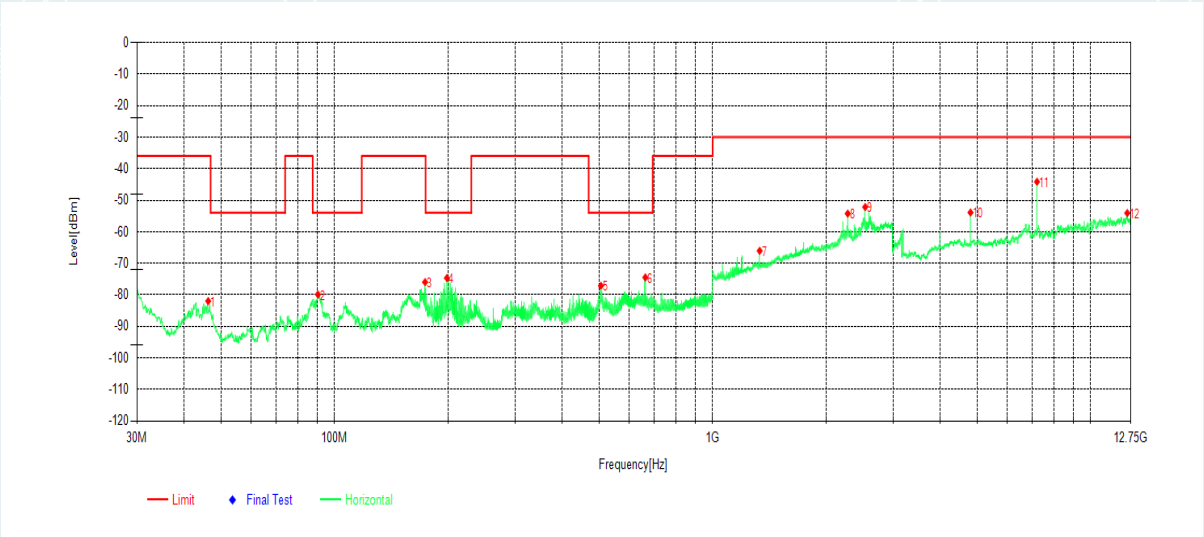
Limit (dBm) = Limit stated in standard

Margin (dB) = Limit(dBm) - Level (dBm)

RMS = Root Mean Square

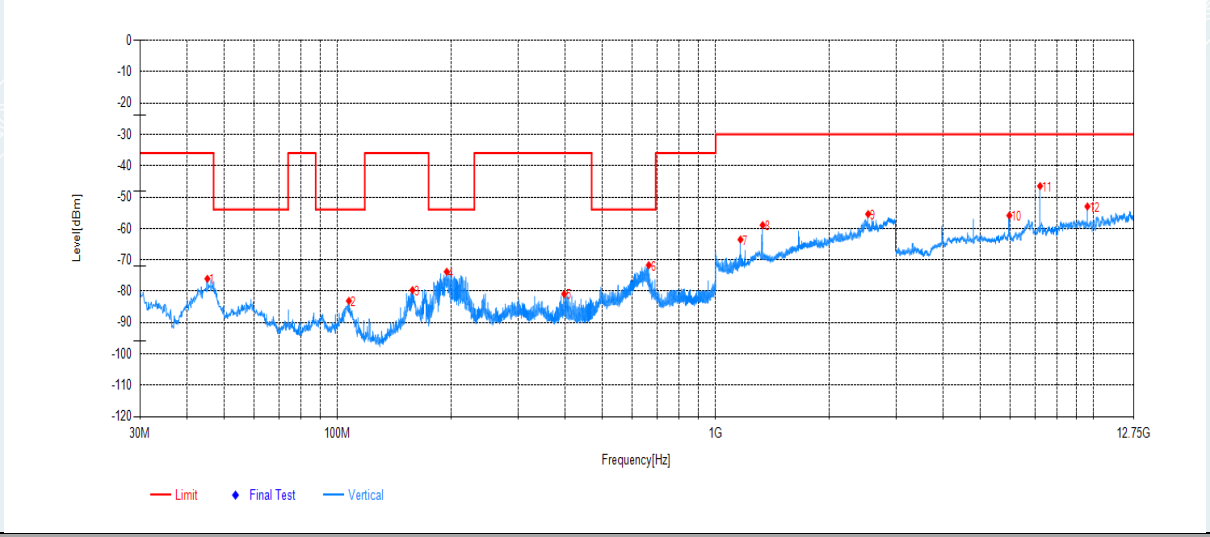
7.5.5 TEST RESULTS

Project No	E20240407651301	EUT:	Presence Sensor FP1E
Model:	PS-S03D	Sample No:	E20240407651301-0002
Mode:	Mode 1_2405MHz	Voltage:	DC 5V
Environment:	25.2℃/54%RH/101.0kPa	Engineer:	Gong xuan
Test Date:	2024-04-15	/	/



Suspected Data List								
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Detector	Polarity
1	46.296	-66.22	-81.99	-36.00	45.99	-15.77	RMS	Horizontal
2	90.334	-62.94	-79.88	-54.00	25.88	-16.94	RMS	Horizontal
3	173.56	-56.87	-75.97	-36.00	39.97	-19.10	RMS	Horizontal
4	198.198	-58.21	-74.69	-54.00	20.69	-16.48	RMS	Horizontal
5	506.367	-66.72	-77.14	-54.00	23.14	-10.42	RMS	Horizontal
6	663.701	-67.11	-74.49	-54.00	20.49	-7.38	RMS	Horizontal
7	1331.8	-66.77	-66.04	-30.00	36.04	0.73	RMS	Horizontal
8	2277.2	-62.63	-54.25	-30.00	24.25	8.38	RMS	Horizontal
9	2532.8	-63.73	-52.18	-30.00	22.18	11.55	RMS	Horizontal
10	4810.575	-52.02	-53.92	-30.00	23.92	-1.90	RMS	Horizontal
11	7213.95	-49.10	-44.16	-30.00	14.16	4.94	RMS	Horizontal
12	12498.45	-68.72	-54.09	-30.00	24.09	14.63	RMS	Horizontal

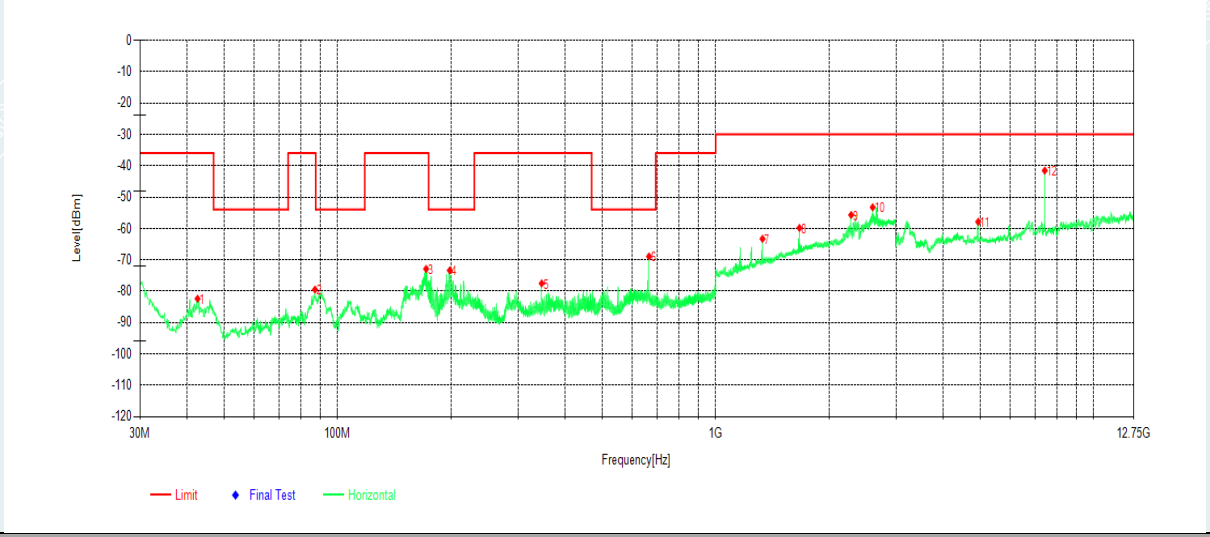
Project No	E20240407651301	EUT:	Presence Sensor FP1E
Model:	PS-S03D	Sample No:	E20240407651301-0002
Mode:	Mode 1_2405MHz	Voltage:	DC 5V
Environment:	25.2℃/54%RH/101.0kPa	Engineer:	Gong xuan
Test Date:	2024-04-15	/	/



Suspected Data List

NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Detector	Polarity
1	45.229	-62.34	-76.04	-36.00	40.04	-13.70	RMS	Vertical
2	107.115	-63.35	-83.09	-54.00	29.09	-19.74	RMS	Vertical
3	157.846	-61.79	-79.68	-36.00	43.68	-17.89	RMS	Vertical
4	194.318	-56.32	-73.81	-54.00	19.81	-17.49	RMS	Vertical
5	397.533	-68.67	-80.87	-36.00	44.87	-12.20	RMS	Vertical
6	665.447	-64.32	-71.73	-54.00	17.73	-7.41	RMS	Vertical
7	1163.6	-62.84	-63.55	-30.00	33.55	-0.71	RMS	Vertical
8	1331.4	-60.25	-58.92	-30.00	28.92	1.33	RMS	Vertical
9	2533	-66.66	-55.43	-30.00	25.43	11.23	RMS	Vertical
10	5984.475	-56.95	-55.89	-30.00	25.89	1.06	RMS	Vertical
11	7215.9	-51.37	-46.49	-30.00	16.49	4.88	RMS	Vertical
12	9622.2	-61.63	-53.00	-30.00	23.00	8.63	RMS	Vertical

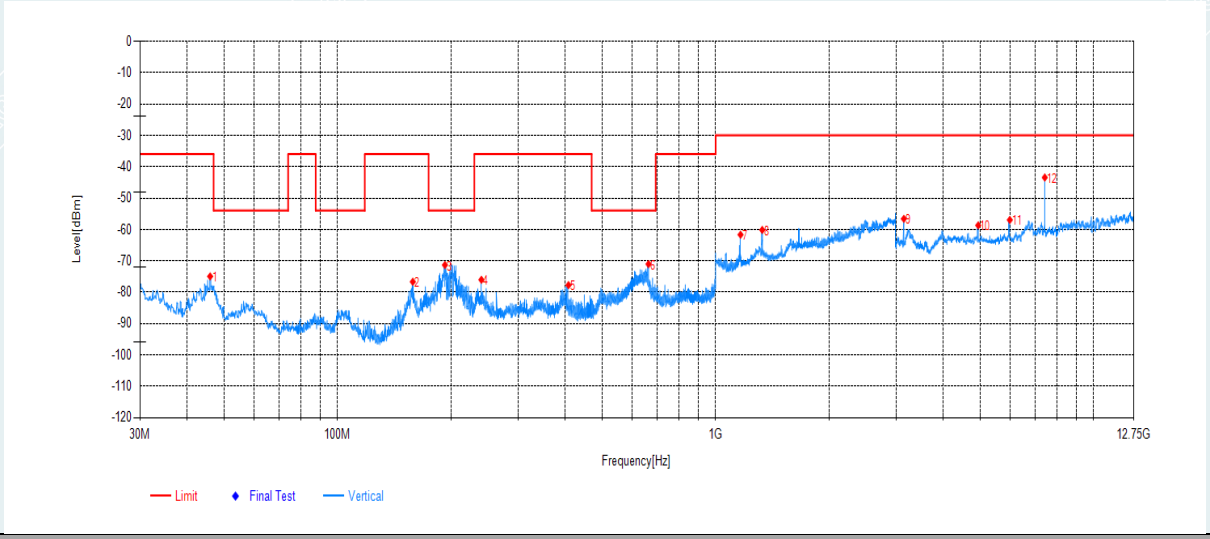
Project No	E20240407651301	EUT:	Presence Sensor FP1E
Model:	PS-S03D	Sample No:	E20240407651301-0002
Mode:	Mode 1_2480MHz	Voltage:	DC 5V
Environment:	25.2℃/54%RH/101.0kPa	Engineer:	Gong xuan
Test Date:	2024-04-15	/	/



Suspected Data List

NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Detector	Polarity
1	42.61	-67.76	-82.40	-36.00	46.40	-14.64	RMS	Horizontal
2	87.133	-60.69	-79.50	-36.00	43.50	-18.81	RMS	Horizontal
3	171.426	-53.61	-72.91	-36.00	36.91	-19.30	RMS	Horizontal
4	198.004	-56.90	-73.38	-54.00	19.38	-16.48	RMS	Horizontal
5	346.802	-63.97	-77.52	-36.00	41.52	-13.55	RMS	Horizontal
6	666.514	-61.41	-68.93	-54.00	14.93	-7.52	RMS	Horizontal
7	1330.4	-64.05	-63.29	-30.00	33.29	0.76	RMS	Horizontal
8	1665.8	-64.36	-59.85	-30.00	29.85	4.51	RMS	Horizontal
9	2282.6	-64.02	-55.70	-30.00	25.70	8.32	RMS	Horizontal
10	2603	-64.69	-53.25	-30.00	23.25	11.44	RMS	Horizontal
11	4949.025	-56.92	-57.86	-30.00	27.86	-0.94	RMS	Horizontal
12	7423.575	-46.50	-41.57	-30.00	11.57	4.93	RMS	Horizontal

Project No	E20240407651301	EUT:	Presence Sensor FP1E
Model:	PS-S03D	Sample No:	E20240407651301-0002
Mode:	Mode 1_2480MHz	Voltage:	DC 5V
Environment:	25.2℃/54%RH/101.0kPa	Engineer:	Gong xuan
Test Date:	2024-04-15	/	/



Suspected Data List

NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Detector	Polarity
1	46.005	-61.32	-74.97	-36.00	38.97	-13.65	RMS	Vertical
2	158.04	-58.78	-76.66	-36.00	40.66	-17.88	RMS	Vertical
3	192.281	-53.89	-71.36	-54.00	17.36	-17.47	RMS	Vertical
4	240.102	-60.59	-76.04	-36.00	40.04	-15.45	RMS	Vertical
5	408.009	-65.77	-77.76	-36.00	41.76	-11.99	RMS	Vertical
6	664.186	-63.76	-71.07	-54.00	17.07	-7.31	RMS	Vertical
7	1163.4	-60.96	-61.67	-30.00	31.67	-0.71	RMS	Vertical
8	1328	-61.52	-60.17	-30.00	30.17	1.35	RMS	Vertical
9	3145.275	-50.04	-56.61	-30.00	26.61	-6.57	RMS	Vertical
10	4949.025	-57.90	-58.71	-30.00	28.71	-0.81	RMS	Vertical
11	5999.1	-57.98	-56.98	-30.00	26.98	1.00	RMS	Vertical
12	7423.575	-48.45	-43.44	-30.00	13.44	5.01	RMS	Vertical

7.6 RECEIVER SPURIOUS EMISSIONS

Test Requirement: AS/NZS 4268:2017 Clause 7.2

Test Method: EN300 328 V2.2.2

7.6.1 LIMIT

The spurious emissions of the receiver shall not exceed the values given in table 3.

In case of equipment with antenna connectors, these limits apply to emissions at the antenna port (conducted).

For emissions radiated by the cabinet or for emissions radiated by integral antenna equipment (without antenna connectors), these limits are e.r.p for emissions up to 1 GHz and e.i.r.p for emissions above 1 GHz.

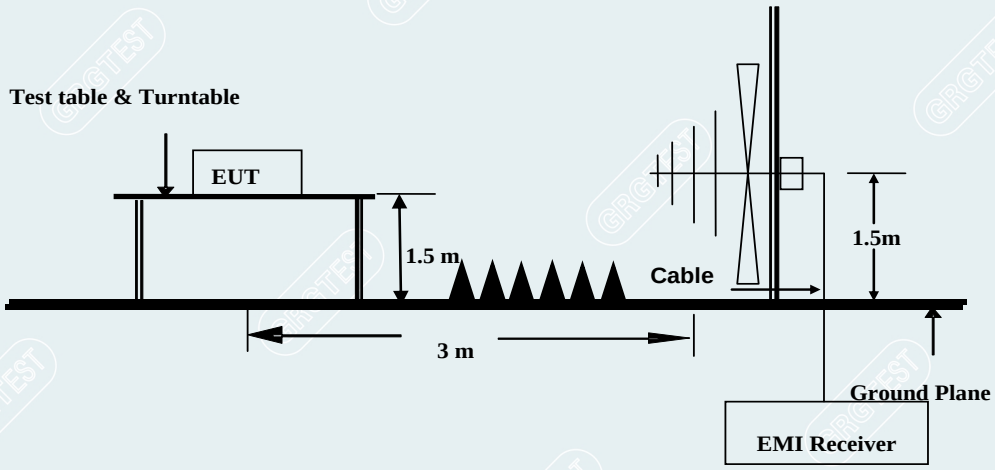
This device uses Radiated measurement.

Table 3: Spurious emission limits for receivers

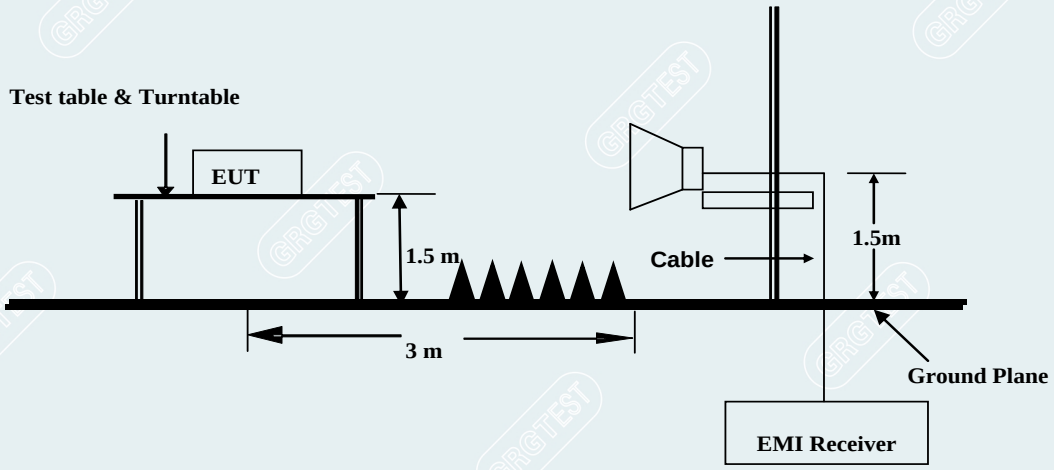
Frequency range	Maximum power	Bandwidth
30 MHz to 1 GHz	-57 dBm	100 kHz
1 GHz to 12,75 GHz	-47 dBm	1 MHz

7.6.2 TEST CONFIGURATION

30MHz-1000MHz



1000MHz-12750MHz



7.6.3 TEST PROCEDURES

Test channel: Lowest channel, Highest channel

Test condition: Normal test conditions.

Test procedure: Test procedure is according to Clause 5.4.10.2.2 of EN 300 328 V2.2.2

7.6.4 DATA SAMPLE

Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Detector	Polarity
XXX	-49.71	-57.90	-30.00	27.90	-8.19	RMS	Horizontal

Frequency (MHz) = Emission frequency in MHz

Reading (dBm) = Uncorrected Analyzer / Receiver reading

Level (dBm) = Reading (dBm) + Factor (dB)

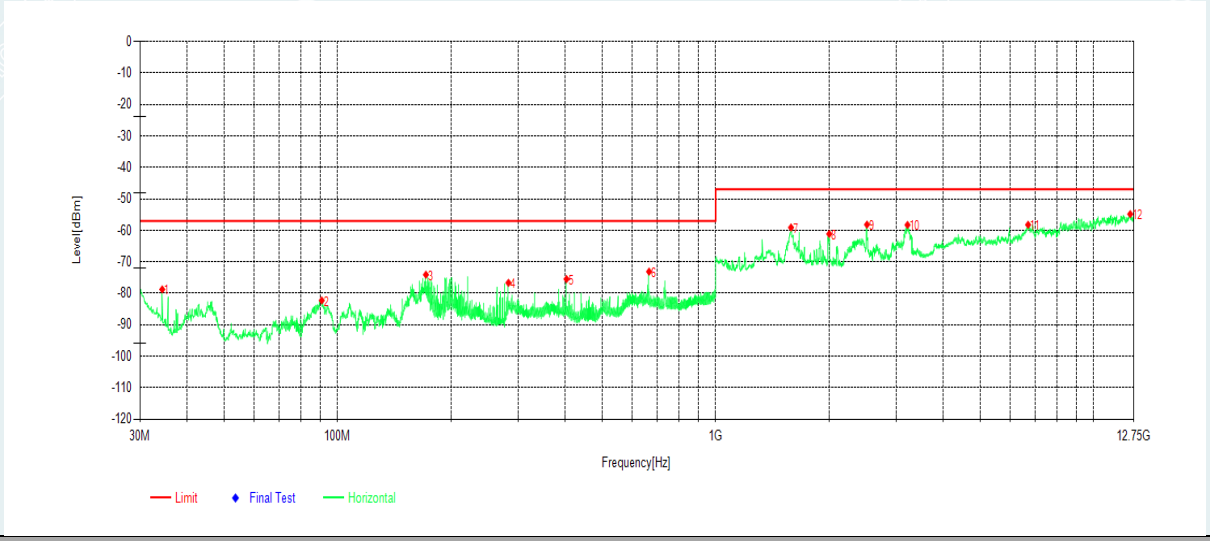
Limit (dBm) = Limit stated in standard

Margin (dB) = Limit(dBm) - Level (dBm)

RMS = Root Mean Square

7.6.5 TEST RESULTS

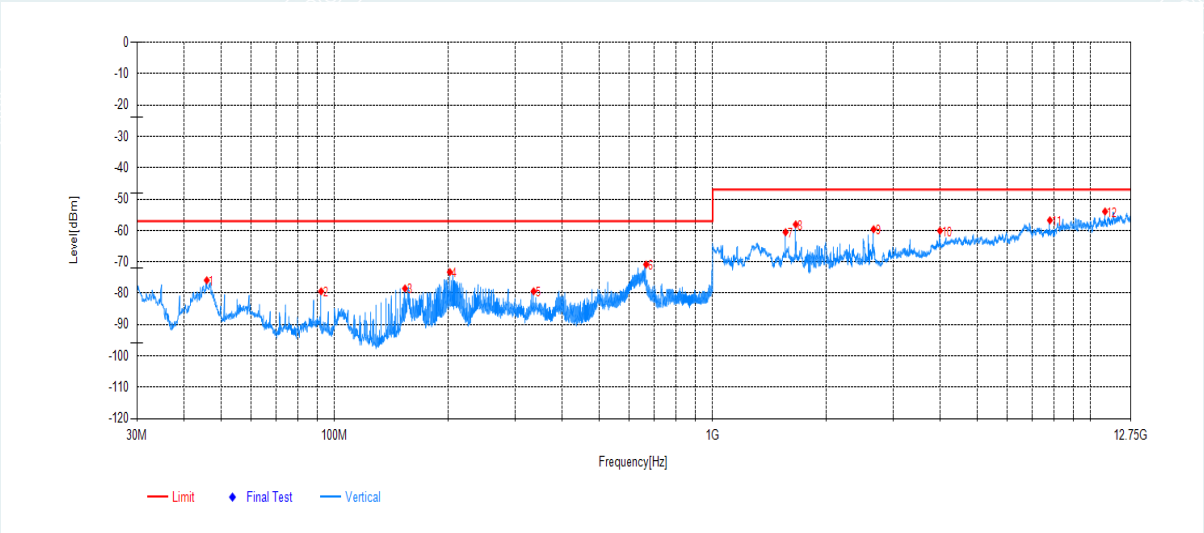
Project No	E20240407651301	EUT:	Presence Sensor FP1E
Model:	PS-S03D	Sample No:	E20240407651301-0002
Mode:	Mode 2_2405MHz	Voltage:	DC 5V
Environment:	25.2℃/54%RH/101.0kPa	Engineer:	Gong xuan
Test Data:	2024-04-15	/	/



Suspected Data List

NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Detector	Polarity
1	34.365	-64.29	-78.79	-57.00	21.79	-14.50	RMS	Horizontal
2	90.819	-65.34	-82.27	-57.00	25.27	-16.93	RMS	Horizontal
3	171.232	-54.81	-74.12	-57.00	17.12	-19.31	RMS	Horizontal
4	283.17	-62.43	-76.69	-57.00	19.69	-14.26	RMS	Horizontal
5	403.159	-63.87	-75.49	-57.00	18.49	-11.62	RMS	Horizontal
6	666.514	-65.60	-73.12	-57.00	16.12	-7.52	RMS	Horizontal
7	1582.8	-46.04	-59.11	-47.00	12.11	-13.07	RMS	Horizontal
8	1997.575	-49.87	-61.17	-47.00	14.17	-11.30	RMS	Horizontal
9	2513.4	-48.35	-58.20	-47.00	11.20	-9.85	RMS	Horizontal
10	3218.4	-51.23	-58.31	-47.00	11.31	-7.08	RMS	Horizontal
11	6709.325	-63.63	-58.25	-47.00	11.25	5.38	RMS	Horizontal
12	12498.55	-69.60	-54.85	-47.00	7.85	14.75	RMS	Horizontal

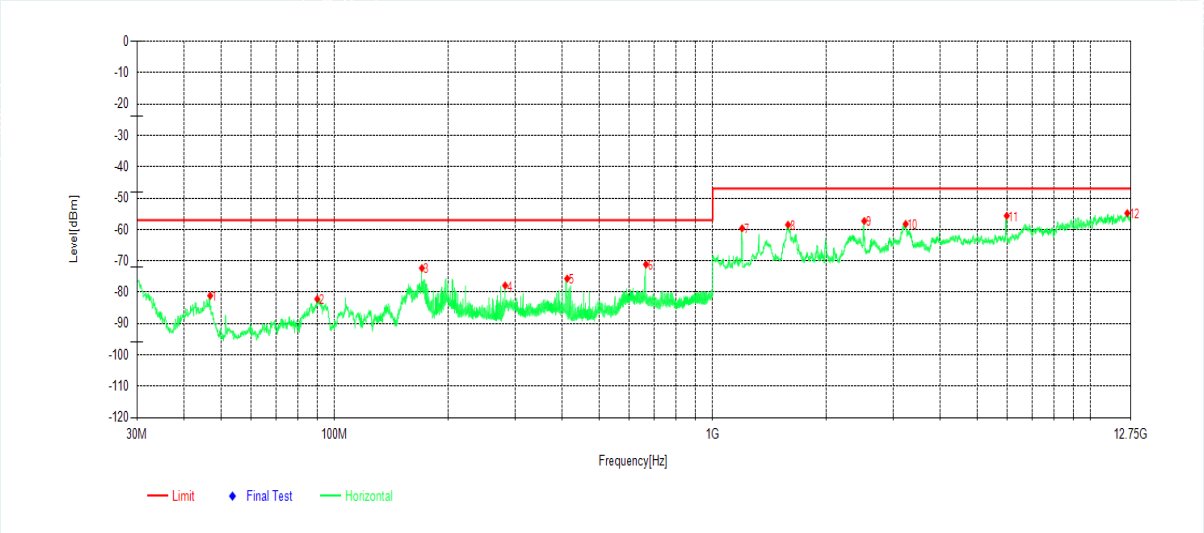
Project No	E20240407651301	EUT:	Presence Sensor FP1E
Model:	PS-S03D	Sample No:	E20240407651301-0002
Mode:	Mode 2_2405MHz	Voltage:	DC 5V
Environment:	25.2℃/54%RH/101.0kPa	Engineer:	Gong xuan
Test Data:	2024-04-15	/	/



Suspected Data List

NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Detector	Polarity
1	45.908	-62.25	-75.90	-57.00	18.90	-13.65	RMS	Vertical
2	92.177	-59.93	-79.42	-57.00	22.42	-19.49	RMS	Vertical
3	153.578	-60.13	-78.50	-57.00	21.50	-18.37	RMS	Vertical
4	201.787	-55.74	-73.28	-57.00	16.28	-17.54	RMS	Vertical
5	336.035	-65.91	-79.42	-57.00	22.42	-13.51	RMS	Vertical
6	666.514	-63.38	-70.87	-57.00	13.87	-7.49	RMS	Vertical
7	1559.3	-47.52	-60.56	-47.00	13.56	-13.04	RMS	Vertical
8	1659.175	-45.50	-58.10	-47.00	11.10	-12.60	RMS	Vertical
9	2666.15	-49.78	-59.63	-47.00	12.63	-9.85	RMS	Vertical
10	3992.725	-56.66	-60.09	-47.00	13.09	-3.43	RMS	Vertical
11	7799.725	-62.02	-56.77	-47.00	9.77	5.25	RMS	Vertical
12	10918.175	-65.74	-53.97	-47.00	6.97	11.77	RMS	Vertical

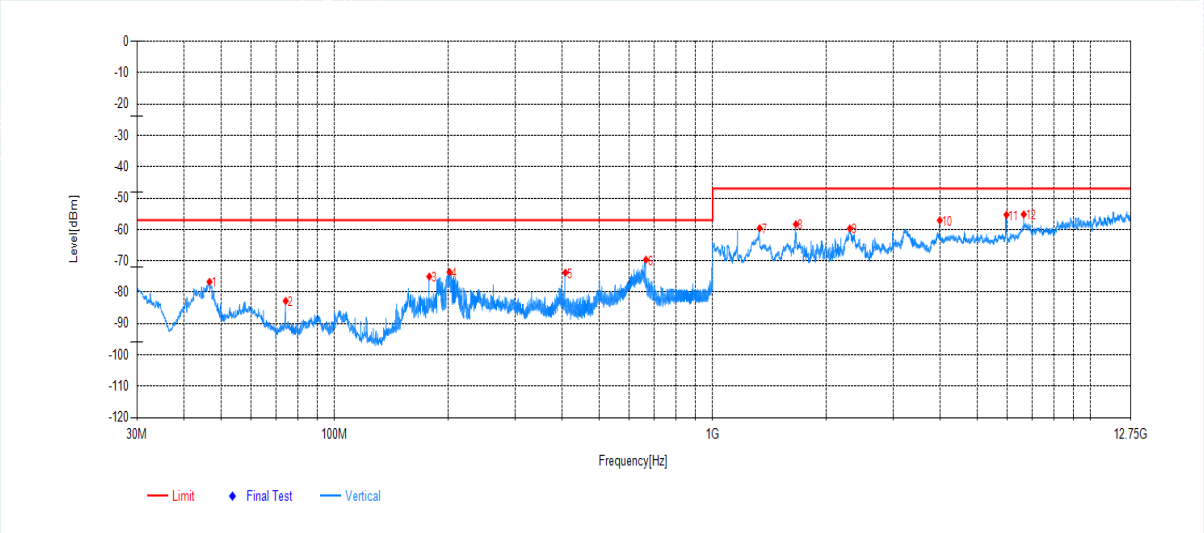
Project No	E20240407651301	EUT:	Presence Sensor FP1E
Model:	PS-S03D	Sample No:	E20240407651301-0002
Mode:	Mode 2_2480MHz	Voltage:	DC 5V
Environment:	25.2℃/54%RH/101.0kPa	Engineer:	Gong xuan
Test Data:	2024-04-15	/	/



Suspected Data List

NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Detector	Polarity
1	46.878	-65.18	-81.12	-57.00	24.12	-15.94	RMS	Horizontal
2	89.946	-65.23	-82.20	-57.00	25.20	-16.97	RMS	Horizontal
3	170.165	-52.94	-72.36	-57.00	15.36	-19.42	RMS	Horizontal
4	282.588	-63.60	-77.88	-57.00	20.88	-14.28	RMS	Horizontal
5	412.277	-63.86	-75.68	-57.00	18.68	-11.82	RMS	Horizontal
6	666.223	-63.66	-71.17	-57.00	14.17	-7.51	RMS	Horizontal
7	1196.225	-46.03	-59.65	-47.00	12.65	-13.62	RMS	Horizontal
8	1582.8	-45.45	-58.52	-47.00	11.52	-13.07	RMS	Horizontal
9	2516.925	-47.49	-57.33	-47.00	10.33	-9.84	RMS	Horizontal
10	3240.725	-51.20	-58.23	-47.00	11.23	-7.03	RMS	Horizontal
11	5996.1	-57.30	-55.68	-47.00	8.68	1.62	RMS	Horizontal
12	12502.075	-69.57	-54.82	-47.00	7.82	14.75	RMS	Horizontal

Project No	E20240407651301	EUT:	Presence Sensor FP1E
Model:	PS-S03D	Sample No:	E20240407651301-0002
Mode:	Mode 2_2480MHz	Voltage:	DC 5V
Environment:	25.2℃/54%RH/101.0kPa	Engineer:	Gong xuan
Test Data:	2024-04-15	/	/



Suspected Data List

NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Detector	Polarity
1	46.684	-63.08	-76.69	-57.00	19.69	-13.61	RMS	Vertical
2	74.232	-63.28	-82.82	-57.00	25.82	-19.54	RMS	Vertical
3	178.022	-57.05	-75.02	-57.00	18.02	-17.97	RMS	Vertical
4	201.302	-56.04	-73.58	-57.00	16.58	-17.54	RMS	Vertical
5	408.009	-61.79	-73.78	-57.00	16.78	-11.99	RMS	Vertical
6	666.223	-62.19	-69.65	-57.00	12.65	-7.46	RMS	Vertical
7	1331.35	-47.86	-59.61	-47.00	12.61	-11.75	RMS	Vertical
8	1660.35	-45.73	-58.34	-47.00	11.34	-12.61	RMS	Vertical
9	2305.425	-49.60	-59.72	-47.00	12.72	-10.12	RMS	Vertical
10	3986.85	-53.61	-57.11	-47.00	10.11	-3.50	RMS	Vertical
11	5987.875	-56.98	-55.32	-47.00	8.32	1.66	RMS	Vertical
12	6654.1	-60.30	-55.19	-47.00	8.19	5.11	RMS	Vertical

7.7 RECEIVER BLOCKING

Test Requirement: EN300 328 V2.2.2/ 5.4.11.1

Test Method: EN300 328 V2.2.2/ 5.4.11.2

7.7.1 LIMIT

For equipment that supports a PER or FER test to be performed, the minimum performance criterion shall be a PER or FER less than or equal to 10 %.
For equipment that does not support a PER or a FER test to be performed, the minimum performance criterion shall be no loss of the wireless transmission function needed for the intended use of the equipment.
The blocking levels at specified frequency offsets shall be equal to or greater than the limits defined for.

Receiver Blocking parameters for Receiver Category 1 equipment

Wanted signal mean power from companion device (dBm) (see notes 1 and 4)	**Blocking Signal frequency (MHz)**	**Blocking signal power (dBm) (see note 4)**	**Type of blocking signal**
(-133dBm+10 × $\log_{10}$(OCBW)) or -68dBm whichever is less (see note 2)	2380 2504	-34	CW
(-139dBm+10 × $\log_{10}$(OCBW)) or -74dBm whichever is less (see note 3)	2300 2330 2360 2524 2584 2674		

NOTE 1: OCBW is in Hz.
NOTE 2: In case of radiated measurements using a companion device and the level of the wanted signal from the companion device cannot be determined, a relative test may be performed using a wanted signal up to P_{min} + 26 dB where P_{min} is the minimum level of wanted signal required to meet the minimum performance criteria as defined in clause 4.3.1.12.3 in the absence of any blocking signal.
NOTE 3: In case of radiated measurements using a companion device and the level of the wanted signal from the companion device cannot be determined, a relative test may be performed using a wanted signal up to P_{min} + 20 dB where P_{min} is the minimum level of wanted signal required to meet the minimum performance criteria as defined in clause 4.3.1.12.3 in the absence of any blocking signal.
NOTE 4: The level specified is the level at the UUT receiver input assuming a 0 dBi antenna assembly gain. In case of conducted measurements, this level has to be corrected for the (in-band) antenna assembly gain (G). In case of radiated measurements, this level is equivalent to a power flux density (PFD) in front of the UUT antenna with the UUT being configured positioned as recorded in clause 5.4.3.2.2.

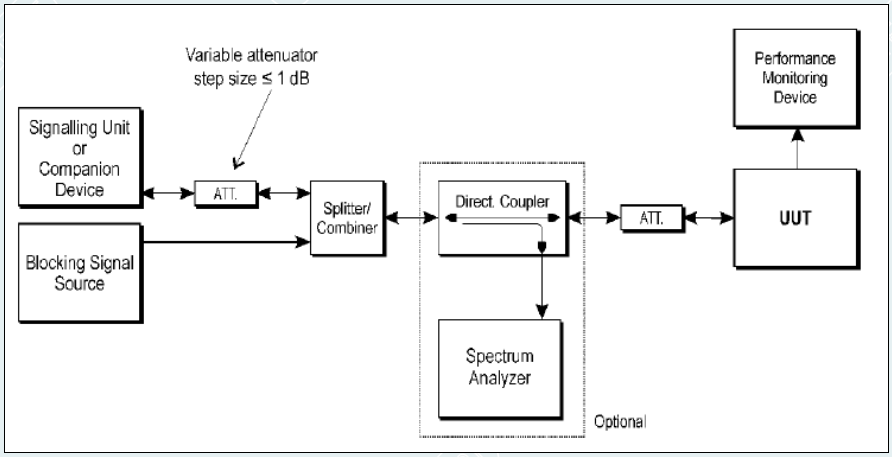
Receiver Blocking parameters for Receiver Category 2 equipment

Wanted signal mean power from companion device (dBm) (see notes 1 and 3)	Blocking Signal frequency (MHz)	Blocking signal power (dBm) (see note 3)	Type of blocking signal
(-139dBm+10 ×$\log_{10}$(OCBW)+10dBm) or (-74dBm+10dBm) whichever is less (see note 2)	2380 2504 2300 2584	-34	CW
NOTE 1: OCBW is in Hz. NOTE 2: In case of radiated measurements using a companion device and the level of the wanted signal from the companion device cannot be determined, a relative test may be performed using a wanted signal up to P_{min} + 26 dB where P_{min} is the minimum level of wanted signal required to meet the minimum performance criteria as defined in clause 4.3.1.12.3 in the absence of any blocking signal. NOTE 3: The level specified is the level at the UUT receiver input assuming a 0 dBi antenna assembly gain. In case of conducted measurements, this level has to be corrected for the (in-band) antenna assembly gain (G). In case of radiated measurements, this level is equivalent to a power flux density (PFD) in front of the UUT antenna with the UUT being configured/positioned as recorded in clause 5.4.3.2.2.			

Receiver Blocking parameters for Receiver Category 3 equipment

Wanted signal mean power from companion device (dBm) (see notes 1 and 3)	Blocking Signal frequency (MHz)	Blocking signal power (dBm) (see note 3)	Type of blocking signal
(-139dBm+10 ×$\log_{10}$(OCBW)+20dBm) or (-74dBm+20dBm) whichever is less (see note 2)	2380 2504 2300 2584	-34	CW
NOTE 1: OCBW is in Hz. NOTE 2: In case of radiated measurements using a companion device and the level of the wanted signal from the companion device cannot be determined, a relative test may be performed using a wanted signal up to P_{min} + 30 dB where P_{min} is the minimum level of wanted signal required to meet the minimum performance criteria as defined in clause 4.3.1.12.3 in the absence of any blocking signal. NOTE 3: The level specified is the level at the UUT receiver input assuming a 0 dBi antenna assembly gain. In case of conducted measurements, this level has to be corrected for the (in-band) antenna assembly gain (G). In case of radiated measurements, this level is equivalent to a power flux density (PFD) in front of the UUT antenna with the UUT being configured/positioned as recorded in clause 5.4.3.2.2.			

7.7.2 TEST CONFIGURATION



7.7.3 TEST PROCEDURES

Test condition: Normal test conditions.

Test procedure: Step1：

Test condition: For non-FHSS equipment, the UUT shall be set to the lowest operating channel on which the blocking test has to be performed (see clause 5.4.11.1).

Step 2:

The blocking signal generator is set to the first frequency as defined in the appropriate table corresponding to the receiver category and type of equipment.

Step 3:

With the blocking signal generator switched off, a communication link is established between the UUT and the associated companion device using the test setup shown in figure 6.

Unless the option provided in note 2 of the applicable table referred to in clause 5.4.11.2.1 is used, the level of the wanted signal shall be set to the value provided in the table corresponding to the receiver category and type of equipment. The test procedure defined in clause 5.4.2, and more in particular clause 5.4.2.2.1.2, can be used to measure the (conducted) level of the wanted signal however no correction shall be made for antenna gain of

the companion device (step 6 in clause 5.4.2.2.1.2 shall be ignored). This level may be measured directly at the output of the companion device and a correction is made for the coupling loss into the UUT. The actual level for the wanted signal shall be recorded in the test report.

When the option provided in note 2 of the applicable table referred to in clause 5.4.11.2.1 is used, the attenuation of the variable attenuator shall be increased in 1 dB steps to a value at which the minimum performance criteria as specified in clause 4.3.1.12.3 or clause 4.3.2.11.3 is still met. The resulting level for the wanted signal at the input of the UUT is Pmin. This signal level (Pmin) is increased by the value provided in note 2 of the applicable table corresponding to the receiver category and type of equipment.

Step 4:

The blocking signal at the UUT is set to the level provided in the table corresponding to the receiver category and type of equipment.

If the performance criteria as specified in clause 4.3.1.12.3 or clause 4.3.2.11.3 are met then proceed to step 6.

Step 5:

If the performance criteria as specified in clause 4.3.1.12.3 or clause 4.3.2.11.3 is not met, step 3 and step 4 shall be repeated after that the frequency of the blocking signal set in step 2 has been increased with a value equal to the Occupied Channel Bandwidth except:

- For the blocking frequency 2 380 MHz, where this frequency offset shall be less than or equal to 10 MHz. If this frequency offset is more than 7 MHz, the level of the wanted

signal shall be increased by 3 dB.
- For the blocking frequency 2 503,5 MHz, where this frequency offset shall be less than or equal to 10 MHz. If this frequency offset is more than 7 MHz, the level of the wanted signal shall be decreased by 3 dB.
If the performance criteria as specified in clause 4.3.1.12.3 or clause 4.3.2.11.3 is still not met, step 3 and step 4 shall be repeated after that the frequency of the blocking signal set in step 2 has been decreased with a value equal to the Occupied Channel Bandwidth except:
- For the blocking frequency 2 380 MHz, where this frequency offset shall be less than or equal to 10 MHz. If this frequency offset is more than 7 MHz, the level of the wanted signal shall be decreased by 3 dB.
- For the blocking frequency 2 503,5 MHz, where this frequency offset shall be less than or equal to 10 MHz. If this frequency offset is more than 7 MHz, the level of the wanted signal shall be increased by 3 dB.
If the performance criteria as specified in clause 4.3.1.12.3 or clause 4.3.2.11.3 is still not met, the UUT fails to comply with the Receiver Blocking requirement and step 6 and step 7 are no longer required.
It shall be recorded in the test report whether the shift of blocking frequencies as described in the present step was used.
Step 6:
Repeat step 4 and step 5 for each remaining combination of frequency and level for the blocking signal as provided in the table corresponding to the receiver category and type of equipment.
Step 7
For non-FHSS equipment, repeat step 2 to step 6 with the UUT operating at the Highest operating channel on which the blocking test has to be performed (see clause 5.4.11.1).
Step 8
It shall be assessed and recorded in the test report whether the UUT complies with the Receiver Blocking requirement.
Keep the EUT on the lowest and Highest channel working mode.

Remark: If the equipment can be configured to operate with different Nominal Channel Bandwidths (e.g. 20 MHz and 40 MHz) and different data rates, then the combination of the smallest channel bandwidth and the lowest data rate for this channel bandwidth which still allows the equipment to operate as intended shall be used.

Test channel: Lowest channel, Highest channel

7.7.4 TEST RESULTS

Test Date (yy-mm-dd): 2024-04-09

Test environment: Normal condition:

24.2℃/64%RH/101.0kPa

Test By: Qin Tingting

Receiver Blocking							
Receiver Category 2							
Test Mode	Frequency (MHz)	Wanted signal [dBm]	Blocking signal frequency (MHz)	Blocking signal power (dBm)	PER(%)	limit(%)	Test Result
Mode 2	2405	-63.48	2300	-32	0.00	10	Pass
		-63.48	2380	-32	0.20	10	Pass
	2480	-63.47	2504	-32	0.10	10	Pass
		-63.47	2584	-32	0.00	10	Pass

Remark: CW=signal power(-34dBm) + Antenna Gain(2.0dBi).

---------- **The following blanks** ----------

APPENDIX A. PHOTOGRAPH OF THE TEST CONNECTION DIAGRAM

Please refer to the attached document E20240407651301-CE Test Photo.

APPENDIX B. PHOTOGRAPH OF THE EUT

Please refer to the attached document E20240407651301-EUT Photo.

---------- End of Report ----------